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FEASIBILITY OF HANDLING LARGER SIZE SHIPMENTS OF PUBLIC LAW 480 BULK WHEAT IN HONDURAS

by

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Feasibility of Handling Larger Size
Shipments of Public Law 480 Bulk Wheat in Honduras

Not unlike many other developing countries, the consumption of wheat in Honduras has increased quite rapidly in recent years due to rapid population growth (about 3 percent annually) and increasing per capita incomes. Wheat imports, Honduras' leading food import item, have increased from about $3 million annually in the late 1960s to $17 million in 1982. As can be seen in Table 1, the consumption of wheat has increased from 46,000 metric tons annually in the 1969-71 period to 85,000 metric tons in 1982 and is projected to increase to 95,000 metric tons annually by 1990. If the rapid increases in wheat consumption of the early 1980s continues throughout the remainder of the decade, the consumption of wheat will reach 95,000 metric tons annually before 1990.[1/] All of this indicates that Honduras is a substantial and rapidly growing market for wheat and that wheat has become an important and permanent part of the Honduran diet.

Since Honduras has no domestic wheat production, all of the wheat consumed locally must be imported. The Honduran market for wheat consists of three different classes of wheat consisting of about 50 percent hard red winter or hard red spring wheat, about 40 percent soft red winter wheat and about 10 percent durum wheat. The U.S. has supplied nearly all of the wheat imports and until recently most of the sales have been commercial sales. France, Argentina and the European Economic Community have donated some wheat to Honduras in recent years and some wheat flour has also been imported from Canada. Due to the increasing shortage of foreign exchange needed for commercial wheat imports, Public Law 480 concessional sales of wheat have rapidly become the principal source of wheat imports to Honduras since the first U.S. and Honduras agreement

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[1/] One metric ton of wheat equals 36.73 bushels of wheat.

was signed in 1975. Table 2 indicates the dates of the original agreement, the dates of the amendments to those agreements, the amount of the agreements in dollars, and the Commodity Credit Corporation (CCC) cost which includes the ocean freight costs paid by the CCC. This cost is the amount that the U.S. Government reimburses the importing country for the ocean freight differential or the difference between the higher cost U.S. flag rates and the foreign flag rates for that 50 percent of the cargo which legally is required to be carried by U.S. flag vessels. This ocean freight differential (subsidy) is an item that the U.S. government wants to keep as low as possible for political as well as economic reasons.

Although some rice was imported under the first P.L. 480 agreement, Table 3 indicates that wheat has been the only commodity imported since 1975. P.L. 480 wheat imports have increased from 10,000 metric tons in U.S. government fiscal year 1975 to 34,000 metric tons in 1982 and to 71,000 metric tons in 1983. P.L. 480 wheat imports at this level represent about 85 percent of total Honduran wheat imports. Indications are that imports will also increase in 1984 since Honduras already has an allocation of $8 million (about 49,000 metric tons) and has requested another $6 million (about 36,000 metric tons) which if approved would place P.L. 480 imports in the range of 80 to 85,000 metric tons for fiscal year 1984. This would be a substantial increase over 1983 and would likely satisfy the total wheat import demand for Honduras in 1984 thereby eliminating any need to import wheat commercially.

The rapid increases in total wheat imports and in P.L. 480 wheat imports have placed new pressures on the Honduran wheat importing and handling system to effectively transfer these increased quantitites from the foreign port to the domestic port and from the domestic port to the wheat millers at the lowest possible cost. The more efficiently this system handles the wheat the

greater the saving to the Honduran economy in terms of the foreign and domestic currency costs.

The purpose of this report is to determine the feasibility of handling larger size shipments of P.L. 480 wheat in Honduras. This will include an analysis of the vessel size and cost for current shipments to Honduras with comparisons for Costa Rica and El Salvador, and estimates of the cost saving from larger size shipments. The report will also analyze the port capacity for larger vessels in Honduras, the unloading capacity at the port, the storage and receiving capacity of the wheat millers and the transportation facilities and capacity from the port to the wheat millers. The report will close with an analysis of the costs and benefits of larger size shipments and recommend the most feasible size of shipment for Honduran wheat imports.

Current Shipping Pattern

As can be seen in Table 4, the amount shipped from the U.S. Gulf to Puerto Cortes, Honduras, has ranged from almost 10,000 metric tons to less than 2,000 metric tons of wheat in the fiscal year 1983 and to date in 1984. The U.S. flag shipments have ranged from about 7,000 to 10,000 metric tons while the foreign flag shipments have been much smaller, ranging from 1,700 to 7,000 metric tons. The most frequent size of foreign flag vessel has been in the range of 3,000 to 4,000 metric tons. The small size of shipments has resulted in a rather large number of shipments (20 for fiscal year 1983 and only part of 1984) to meet the wheat import demands of Honduras. The large number of shipments in combination with the small average size of shipment may not only result in high ocean freight costs but also high transaction costs in terms of the paperwork required to process everything through two government bureaucracies and a number of private firms in Honduras and the U.S.

The current shipping pattern of buying frequently in small quantities indicates that the wheat importing and handling system is basically a hand to mouth operation that carries very little inventory of wheat within the country. One important advantage of such a system is that the inventory cost for the wheat miller is very low; however, the risk of running out of wheat and out of bread in the country is also higher. This hand-to-mouth system may be more risky under a government to government wheat import program such as P.L. 480 than when Honduras was importing all its wheat commercially because of the added time and paperwork required in a program of this type.

Ocean freight rates have ranged from a low of $20.40 on foreign flag carriers to a high of $36.24 per metric ton on a U.S. flag carrier. The lower ocean freight rate achieved recently is due to the fact that the Government of Honduras changed in March of 1984, its freight invitation for bids to "vessel load/free out" terms with guaranteed rates of load/discharge and provisions for demurrage/dispatch both ends. This change resulted in lower ocean freight rates because of the Honduran guarantees which reduced the vessels' risk and also because the free out meant that the vessel does not pay the unloading cost which was billed at U.S.$7.50 per metric ton. The unloading cost is now paid directly by the wheat miller in domestic currency which is estimated to be Lps$9.75 per metric ton or about U.S.$4.87 at the official exchange rate. All previous invitations for bids were according to berth terms with no guarantees. It is also evident from Table 4 that the U.S. flag vessels have been barges and that the foreign flag vessels have been dry bulk carriers. U.S. flag ships have not been able to compete with barges in those shipment sizes in the current market for ocean freight.

The pattern of shipments for Costa Rica and El Salvador under P.L. 480 presents a striking contrast with that of Honduras (Tables 5 and 6). The number of shipments is much smaller and the size of shipments is substantially larger for both U.S. flag and foreign flag vessels. The average size of shipment and the average ocean freight rate for bulk wheat from the U.S. Gulf to Puerto Cortes, Honduras, to Puntarenas, Costa Rica and to Acajutlas, El Salvador is shown in Table 7. On U.S. flag vessels the average size of shipment of bulk wheat to Costa Rica and to El Salvador is 30 percent and 72 percent, respectively, larger than the average size of shipments to Honduras. On the foreign flag vessels the difference is even more striking because the average size of shipment to Costa Rica is 227 percent greater than that to Honduras, while the average size of shipment to El Salvador is 315 percent greater than that to Honduras. One might argue that the average shipment size is much greater for these countries because the size of the P.L. 480 program is much greater in these two countries. While this is ture in El Salvador where the program was nearly double that of Honduras in fiscal year 1983, it is not true in Costa Rica where the P.L. 480 wheat imports were actually slightly less than those in Honduras in fiscal year 1983.

The difference in ocean freight rates is even more striking than the differences in the number and average size of shipments among the three countries (Table 7). The average ocean freight rate from the U.S. Gulf to Puntarenas, Costa Rica and to Acajutla, El Salvador for bulk wheat is significantly lower than that to Puerto Cortes, Honduras, when one considers that shipments to Costa Rica and El Salvador must travel much longer distances and pass through the Panama Canal to reach their final destination. The distance from the U.S. Gulf to Puerto Cortes, Puntarenas and Acajutla is approximately 950, 1,850,

and 2,260 nautical miles, respectively. The weighted average ocean freight rate of U.S.$33.40 per metric ton on U.S. flag vessels from the U.S. Gulf to Puerto Cortes, Honduras, is only slightly lower than the U.S. flag ocean freight rate to Puntarenas, Costa Rica or to Acajutla, El Salvador. The foreign flag rates to Costa Rica and to El Salvador are actually less than those to Honduras despite the longer distance and the cost of going through the Panama Canal. The average foreign flag rate to El Salvador is substantially lower than that to Honduras ($17.29 compared to $23.62) and, in fact, is lower than any rate Honduras has ever obtained (Table 7 and Table 6). The type of vessel used does not explain this difference in shipping rates since the U.S. flag vessels tend to be barges to all three countries and the foreign flag vessels tend to be dry bulk carriers. The guaranteed rates of discharge are also quite similar among the three countries as can be seen in Table 8 which suggests that time in port is not dramatically different in the three countries. Thus, size of shipment has to be the principal factor explaining the substantial differences in shipping costs among the three countries.

In order to estimate the savings possible from larger size shipments, the ocean shipping rate per ton-mile (the rate to ship one metric ton one nautical mile) information from Table 7 is used. Since the Costa Rican rates are between the higher rates for Honduras and the lower rates for El Salvador, and since the size of the P.L. 480 program is about the same as the one in Honduras, the Costa Rican rates will be used as a reference point. If the Costa Rican ton-mile rate (.02145 U.S. flag or .01257 foreign flag) is multiplied by the 950 nautical miles from New Orleans to Puerto Cortes, the resulting ocean freight rate is $20.38 for U.S. flag vessels and $11.94 for foreign flag vessels. Thus, the maximum saving possible from larger size shipments

would appear to be about $11 to $13 per metric ton; however, Honduras would not likely be able to achieve that low a ton-mile rate so a more realistic saving from larger size shipments would be $8 to $10 per metric ton. With wheat imports of 70,000 metric tons annually, this represents a total saving of $560,000 to $700,000 annually. This saving may not be achieved at a given point in time because of the market conditions for ocean freight. Changes in market conditions cause ocean freight rates to vary significantly from one period to another.

The Honduran Wheat Handling System

Puerto Cortes

Puerto Cortes is located on the Caribbean side of Honduras and is the port through which most cargo of the country enters and leaves. The port authority is the Empresa Nacional Portuaria. The port has fine spacious harbors with good anchorage and five wharves. Number 1 is the Texaco Wharf that is used only for the import and export of petroleum and petroleum products. Number 2 is the United Fruit Company Wharf used for banana and lumber exports. Wharfs 3 to 5 are used for general cargo, including food imports such as wheat. Wharf Number 5 has a draft of 35 feet while wharfs 3 and 4 have 30 to 33 feet. The port is essentially a tide free port because the water level varies no more than 6 inches from high tide to low tide. The water depth at Wharf Number 5 is adequate for vessels which carry a 15,000 to 18,000 metric ton load. In fact, vessels with 20,000 metric tons of cargo have been docked at Wharf Number 5. Thus, Wharf Number 5 has the draft and size to handle vessels carrying 15 to 18,000 metric tons of cargo and is not a barrier to larger size wheat shipments.

According to the Port Superintendent, the port is beginning a two year modification program which could disrupt imports and exports in the near

future. The banana wharf will be out of service due to remodeling so that banana exports will temporarily be moved to Wharf Number 3 which will leave only two wharves for general cargo. After completion of work on the banana wharf, Wharf Number 3 will be remodeled.

At the present time, Honduras guarentees a discharge rate of 1,000 metric tons per day of 24 hours at the port and has consistently discharged at that rate or slightly higher. For example, in a recent shipment of 7,628 metric tons during February, 1984, seven weather working days (Sundays and holidays excluded) were required to unload the vessel. At this rate, a vessel with 15,000 metric tons of wheat can expect to spend 15 weather working days in port to discharge the cargo. Prior to March of 1984, the vessel paid the unloading charge which was billed at U.S.$7.50 per metric ton. Under the recent "vessel load/free out" terms, the wheat importer pays the unloading charge which is billed at Lps$9.75 per metric ton (U.S.$4.875) or a saving of U.S.$2.625 per metric ton.

As can be seen in Table 9, the discharge company at the port (Terminales de Cortes) has sufficient installed capacity to discharge at much faster rates than the current guarantee. The actual discharge rate is much slower than the installed capacity due mainly to rail car capacity constraints and receiving capacity at the three wheat millers. At high rates of discharge with the evacuators, dust control and wheat kernel breakage are said to become a serious problem. The installed capacity is more than adequate to double the discharge rate to 2,000 metric tons per day of 24 hours which could save Honduras another U.S.$3.00 to $4.00 per metric ton because of reduced time in port; however, this cannot be achieved at the present time without other changes in the handling system.

Figure 1 illustrates how the wheat is currently discharged directly from ship side using the evacuators to a holding bin for loading directly onto rail cars or trucks for transport to the wheat millers located some 57 kilometers by road in San Pedro Sula. Such a system is low cost because it avoids any additional handling cost at the port but can also become very costly at a slow rate of discharge. Furthermore, it is obvious that a delay anywhere in the handling system can ultimately shut down the ship discharge process until the problem is corrected. For large shipments of 15,000 to 17,000 metric tons, delays of this type could become quite expensive.

Rail Car Capacity

Shortage of rail cars and utilization of rail cars in the domestic wheat handling system are major barriers at the present time to an increase in wheat shipments of 15,000 to 17,000 metric tons. The Ferrocarril Nacional de Honduras (The National Railroad Company) has a maximum of 132 rail cars with a total capacity of about 3,960 metric tons available for wheat transportation (Table 10). Only 22 of the 132 rail cars are specialized hopper cars that fill from the top and empty from the bottom by gravity flow for fast and efficient grain handling. All the other cars are box cars with side doors that require substantial amounts of manual labor to load and unload. This high proportion of box cars in the rail grain car fleet increases the loading time at the port, unloading time at the wheat millers and consequently the utilization of the current rail car capacity.

Poor management also contributes to the low utilization of rail car capacity in a couple of different ways. Even though rail cars can be loaded to an average of 30 metric tons per car, in practice the amount loaded, according to bills of lading, varies enormously from over 30 metric tons to as little as

six and seven metric tons per car. Switching delays at the port and at the wheat millers also reduce the utilization of current rail car capacity. In a recent shipment of 7,628 metric tons which required seven weather working days to discharge from the ship, 158 rail cars with about 5,600 metric tons (73 percent of the total shipment) were loaded and the remaining 2,026 metric tons was shipped by 100 trucks. This indicates that in a period of seven weather working days, some rail cars were able to return for a second load of wheat. Since the distance from Puerto Cortes to the wheat millers at San Pedro Sula is only about 57 kilometers, the turn around time or utilization of rail car capacity should be much better. Another factor which may contribute to this slow turn around time is the fact that there is only a single rail line between San Pedro Sula and Puerto Cortes. Trains loaded with wheat may be delayed at points along the way while other trains pass with cargo to or from the port.

Despite these problems, rail cars are still the preferred alternative mode of transportation because the rail rate is lower than the truck rate and the wheat millers are to some extent better equipped to handle rail cars. Wheat rail rates from Puerto Cortes to San Pedro Sula are Lps$9.02 per metric ton while truck rates range from Lps$10.00 to 13.50 per metric ton. In addition to the cost, there are several other problems associated with the increased use of truck transportation to handle a greater proportion of larger wheat shipments. First, some of the wheat milling facilities can receive wheat by truck only. Second, truck shipments use about three times more energy per ton-mile than rail shipments so the Honduran oil import bill would increase. Third, truck capacity for general cargo is readily available but specialized grain trucks for fast and efficient loading and unloading are not widely available. Fourth, the two lane hard surfaced highway connecting Puerto Cortes and San Pedro Sula is heavily traveled and has numerous hills and curves so that traffic

congestion and even loss of grain due to accidents could be expected from increased truck shipments of wheat.

Storage and Receiving Capacity at Wheat Millers

Honduras has three wheat millers at the present time with the following estimated market shares: (1) Molina Harinero Sula (M.H.S.) (65 percent), (2) Industrias Molineras S.A. (I.M.S.A.) (25 percent) and (3) Bruni (10 percent). With P.L. 480 fiscal year wheat imports of 70,000 metric tons, the estimated imports of each miller are about 45,000, 17,500 and 7,000 metric tons, respectively. The Bruni mill is specialized in "pasta products" and uses the durum wheat whereas M.H.S. and I.M.S.A. use the hard red spring and hard red winter wheat and the soft red winter wheat. This specialized use of the wheat further reduces the ability of the wheat handling system to efficiently move large volume shipments.

The storage capacity of the three wheat mills by facility location is shown in Table 11. The total storage capacity of over 40,000 metric tons is more than adequate for wheat shipments of 15 to 17,000 metric tons; however, most of this storage is not at the port where it could be used to store the wheat from larger size shipments. The only bulk grain storage facility at Puerto Cortes is the 6,000 metric ton facility owned by M.H.S. No other bulk storage is available at the port to temporarily hold the wheat from large shipments until it can be transported to the mills by rail or truck. M.H.S. has two facilities in the San Pedro Sula area and one in Tegucipalpa. I.M.S.A. and Bruni also have storage at their mills in the San Pedro Sula area.

Receiving capacity at the wheat mills is a barrier to increased shipment size if discharge rates are increased to more than 1,000 metric tons per day. The actual receiving capacity of 1,560 metric tons per 24 hour day is effectively reduced to 1,200 if the Bruni capacity is excluded from the total when

considering the feasibility of larger shipments because of the very small storage capacity at that facility. The 1,200 metric ton rate is about equal to the rate of discharge from ships at the present time.

Of the five facilities (excluding Tegucipalpa) two can receive wheat by truck only (Puerto Cortes and Bruni) and two can receive by rail only (Choloma and LaGuardia). M.H.S. at Bermejo can receive by rail or truck. Since two of the facilities can receive by rail only this means that at least half of any shipments must move by rail. Furthermore, the LaGuardia facility can receive by rail box car only which increases unloading time and reduces rail car utilization as discussed above. According to the millers, a principal reason for the difference between installed receiving capacity by rail and the actual rate of receiving is the amount of down time caused by rail switching delays. Considerable time is lost waiting for switching engines to remove empty cars from the rail siding and to spot loaded cars. Actual receiving rates and installed capacity will increase in 1984 and will be more flexible when I.M.S.A. completes construction at the Choloma facility.

Conclusions and Recommendations

Honduras is not only a substantial and rapidly growing market for wheat but also wheat consumption has become an important and permanent part of the Honduran diet. Public Law 480 concessional sales of wheat have rapidly become the principal source of wheat imports to Honduras since the first agreement was signed in 1975. In this recommendation section, it is assumed that P.L. 480 wheat will continue to be the principal source of wheat inports in the foreseeable future and that these imports will continue to increase.

Rapid increases in wheat imports have placed new pressures on the Honduran wheat importing and handling system to effectively transfer these increased quantities from the foreign port to the domestic port and from the domestic

port to the wheat millers at the lowest possible cost. The current wheat handling system based on a large number of shipments of a small average size is a relatively low internal cost hand to mouth operation that moves wheat directly from ship-side via rail or truck to the wheat mills. However, the current system of a large number of small shipments results in high ocean freight rates compared to Costa Rica and El Salvador and also high transaction costs in terms of manpower and paperwork for the U.S. and Honduran Government.

By increasing shipment size from an average of about 8,000 metric tons on U.S. vessels to 15,000 to 17,000 metric tons, Honduras could save U.S. $8 to $10 per metric ton. Similar savings could also be achieved by increasing the average foreign flag shipment from 4,000 metric tons to 15,000 to 17,000 metric tons. With wheat imports of 70,000 metric tons annually, this represents a total saving of $560 to $700 thousand annually. Honduras could save another $3 to $4.00 per metric ton by increasing its discharge rate in Puerto Cortes from 1,000 to 2,000 metric tons per 24 hour day. The draft of 35 feet with no more than six inches of variation during the year at Wharf Number 5 at Puerto Cortes is adequate for vessels with 15,000 to 17,000 metric tons of wheat. Shipments of this size to Puerto Cortes are feasible and should be pursued in the near future. However, the current hand to mouth wheat distribution system cannot efficiently handle this size of shipment by direct transfer from ship-side to the wheat millers because of transportation and receiving capacity constraints.

It is recommended that Honduras modify the current distribution system so that shipments of 15,000 to 17,000 metric tons of wheat can be rapidly and efficiently discharged from the ship into short term storage facilities at the port for later transfer to the wheat millers. This will enable Honduras

to achieve lower ocean freight rates resulting from larger vessel size as well as faster rates of discharge. The modification consists of new bulk storage facilities for about 15,000 metric tons of wheat at the port so that larger ships can be discharged rapidly. The wheat will be held in this new facility for a short period of time until it can begin to move from this facility to the wheat mills by rail or truck. This alternative requires no increases in rail car or truck capacity because the wheat can move from this facility at the current handling rate of about 1,000 metric tons per day.

According to the port authority, land is available at the port for such a grain storage facility. Upright steel storage, (estimated to cost about $55.00 per metric ton times 15,000 metric tons equals $825,000) could be paid by the saving in ocean freight rates in one year at current wheat import levels. Upright concrete storage at $75 per metric ton would cost about $1,125,000 for the same size facility and could also be paid for in less than two years. Even with the added in and out wheat handling cost for the new facility, the return on this investment appears to be quite favorable. An economic and engineering study of the best type, size, cost and location of this facility at the port should be undertaken.

Table 1: Imports and Consumption of Wheat for Honduras, Selected Years and Projections for 1985 and 1990

Item	Average 1969-71	Average 1979-81	1982	Projected 1985	Projected 1990
	- - - - - - - metric tons - - - - - - -				
Imports	46	72	85	86	95
Consumption	46	73	85	86	95
Per capita consumption	17.7	19.1	19.0	18.5	18.5

Source: U.S. Department of Agriculture, Foreign Agricultural Service. "Production, Supply and Distribution Tables for Selected Commodities," selected year.

Table 2: Public Law 480 Concessional Sales Agreements Signed Between the Government of Honduras and the U.S. Government, January 1, 1975 to December 31, 1983

Date of Agreement	Amount of Agreement in Millions of US $	Title	Type	CCC Cost
March 5, 1975	3.58	I	Original	3.73
April 18, 1975	1.28	I	Amendment	1.65
June 9, 1976	2.20	I	Amendment	2.39
February 27, 1979	2.0	I/III	Original	2.10
July 18, 1980	2.0	I/III	Amendment	2.10
May 22, 1981	3.80	I	Amendment	4.00
June 11, 1982	5.0	I/III	Original	5.70
August 30, 1982	2.0	I	Amendment	2.10
December 3, 1982	5.0	I/III	Amendment	5.30
June 27, 1983	5.0	I	Amendment	5.30
December 16, 1983	3.0	I	Amendment	3.10

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Washington, D.C.

Table 3: Quantity and Value of Public Law 480 Shipments to Honduras by Commodity, January 1, 1975 to September 30, 1983

Commodity	Quantity in Thousands of Metric Tons	Value in Thousands of $	U.S. Government Fiscal Year Oct. 1-Sept. 30.
Rice	10.00	3,767	1975
Wheat	10.02	1,346	1975
Wheat	13.68	2,071	1976
Wheat	13.49	1,966	1979
Wheat	2.93	595	1980
Wheat	27.86	5,096	1981
Wheat	34.16	5,004	1982
Wheat	70.98	11,122	1983
Wheat[a/]	49.00	8,000	1984
Wheat[b/]	36.75	6,000	1984

a/ Country and commodity allocation as of December 30, 1983.

b/ Government of Honduras request for additional allocation that has not yet been approved.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Washington, D.C.

Table 4: Amount Shipped and Ocean Freight Rate by Vessel Flag for Bulk Wheat from the U.S. Gulf to Puerto Cortes, Honduras, 1983-84

Load Date	Amount Shipped in Metric Tons	Ocean Freight Rate US $/MT	Vessel Flag	Vessel Type	U.S. Foreign Ocean Freight Differential
January 1984	9,707	34.25	U.S.	Barge	9.44
April 1984	8,250	25.95	U.S.	Barge	5.55
May 1983	8,000	34.00	U.S.	Barge	5.30
January 1984	7,885	34.25	U.S.	Barge	9.44
September 1983	7,883	34.75	U.S.	Barge	9.34
May 1983	7,205	35.00	U.S.	Barge	6.30
August 1983	7,000	36.25	U.S.	Barge	10.84
April 1983	7,247	25.50	Foreign	Dry bulk Carrier	none
August 1983	6,000	25.00	Foreign	Dry bulk Carrier	none
January 1983	5,000	26.00	Foreign	Dry bulk Carrier	none
June 1984	5,000	20.40	Foreign	Dry bulk Carrier	none
April 1984	4,586	20.40	Foreign	Dry bulk Carrier	none
May 1984	4,009	20.40	Foreign	Dry bulk Carrier	none
August 1983	4,000	26.50	Foreign	Dry bulk Carrier	none
February 1983	4,000	26.00	Foreign	Dry bulk Carrier	none
April 1984	4,000	20.40	Foreign	Dry bulk Carrier	none
August 1983	3,582	26.50	Foreign	Dry bulk Carrier	none
June 1984	3,500	20.40	Foreign	Dry bulk Carrier	none
July 1983	2,897	26.50	Foreign	Dry bulk Carrier	none
June 1984	1,785	20.40	Foreign	Dry bulk Carrier	none

a/ Beginning in March, 1984 the Government of Honduras changed its freight invitation for bids to "vessel load/free out" terms with guaranteed rates of load/discharge and provisions for demurrage/dispatch both ends from berth terms with no guarantees. This resulted in lower freight rates.

Table 5: Amount Shipped and Ocean Freight Rate by Vessel Flag for Bulk Wheat from the U.S. Gulf to Puntarenas, Costa Rica, 1983-84

Load Date	Amount Shipped in Metric Tons	Ocean Freight Rate US $/MT	Vessel Flag	Vessel Type	U.S. Foreign Ocean Freight Differential
June 1983	16,000[a/]	36.00	U.S.	Barge	13.57
March 1983	12,000	41.90	U.S.	Barge	19.47
April 1983	12,000	41.90	U.S.	Barge	19.47
January 1983	8,000	39.75	U.S.	Liner	18.80
March 1984	4,500	41.00	U.S.	Liner	19.79
February 1983	16,000	23.26	Foreign	Dry bulk Carrier	none
May 1983	12,000	23.26	Foreign	Dry bulk Carrier	none

[a/] Including the 8,000 metric tons of corn also carried by the vessel.

Source: U.S. Department of Agriculture, Foreign Agricultural Service

Table 6: Amount Shipped and Ocean Freight Rate by Vessel Flag for Bulk Wheat from the U.S. Gulf to Acajutla, El Salvador, 1983-84

Load Date	Amount Shipped in Metric Tons	Ocean Freight Rate US $/MT	Vessel Flag	Vessel Type	U.S. Foreign Ocean Freight Differential
March 1983	20,000	36.00	U.S.	Dry Bulk Carrier	17.50
August 1984	20,000	35.50	U.S.	Barge	18.35
January 1983	14,500	39.50	U.S.	Barge	21.30
June 1984	13,000	43.02	U.S.	Barge	25.87
January 1983	7,800	39.50	U.S.	Barge	21.30
June 1984	7,000	43.02	U.S.	Barge	25.87
August 1983	22,600	15.50	Foreign	Dry Bulk Carrier	none
June 1983	20,000	18.50	Foreign	Dry Bulk Carrier	none
February 1983	20,000	16.95	Foreign	Dry Bulk Carrier	none
August 1983	8,447	19.95	Foreign	Dry Bulk Carrier	none

Source: U.S. Department of Agriculture, Foreign Agricultural Service

Table 7: A Comparison of Average Size Shipment and Average Ocean Freight Rate for Bulk Wheat by Vessel Flag from the U.S. Gulf to Puerto Cortes, Honduras, Puntarenas, Costa Rica and Acajutla, El Salvador, 1983-84.

From U.S. Gulf to:	Average Size of Shipment in Metric Tons	Average Ocean Freight Rate in U.S.$/MT	Estimated Distance in Nautical Miles[a/]	Ocean Freight Rate in Dollars Per Ton-Mile[b/]
Puerto Cortes, Honduras			950	
U.S. Flag	7,990	33.40		.03515
Foreign Flag	4,277	23.62		.02486
Puntarenas, Costa Rica			1,850	
U.S. Flag	10,500	39.70		.02145
Foreign Flag	14,000	23.26		.01257
Acajutla, El Salvador			2,260	
U.S. Flag	13,716	38.53		.01704
Foreign Flag	17,750	17.29		.00765

[a/] One nautical mile equals 1/60th of a degree or about 6,076 feet.

[b/] The rate per ton-mile is the rate to ship one metric ton of freight one nautical mile.

Source: U.S. Department of Agriculture, Foreign Agricultural Service and computed from other data.

Table 8: A Comparison of Guaranteed Rates of Load and Discharge for Wheat in Honduras, Costa Rica and El Salvador by Type of Carrier, 1984

Country	W H E A T		Type of Carrier
	Load Rate	Discharge Rate	
	- - - Metric Tons per 24 hour day[a/] - - -		
Honduras	2,500	1,000	Dry bulk carrier
	2,000	750	Tween/multi-deckers
Costa Rica	4,000	1,000	Dry bulk carrier
	2,500	1,000	Tween/multi-deckers
El Salvador	4,000	1,200	Dry bulk carrier

[a/] Weather working days, Sundays and holidays excluded.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Washington, D.C.

Table 9: Unloading Capacity for Wheat at Puerto Cortes, Honduras, 1984

Item	UNLOADING CAPACITY	
	Actual Rate	Installed Capacity
	- - Metric tons per 24 hour day - -	
3 Neuero Evacuators each with a maximum rating of 60 MT/hour	1,080	4,320
1 DK evacuator with a maximum rating of 35 MT/hour	240	840
Sub-Total	1,320	5,160[a/]
4 clam shells at 10 MT/hour each	-	960
TOTAL	1,100[b/]	6,120

[a/] The DK evacuator will be replaced in 1984 with another Nuero of the same size as those already in use so that total installed capacity will increase to 5,760 MT in 24 hours.

[b/] Actual rate of unloading that has consistently been achieved.

Source: Terminales de Cortes S.A. de C.V.

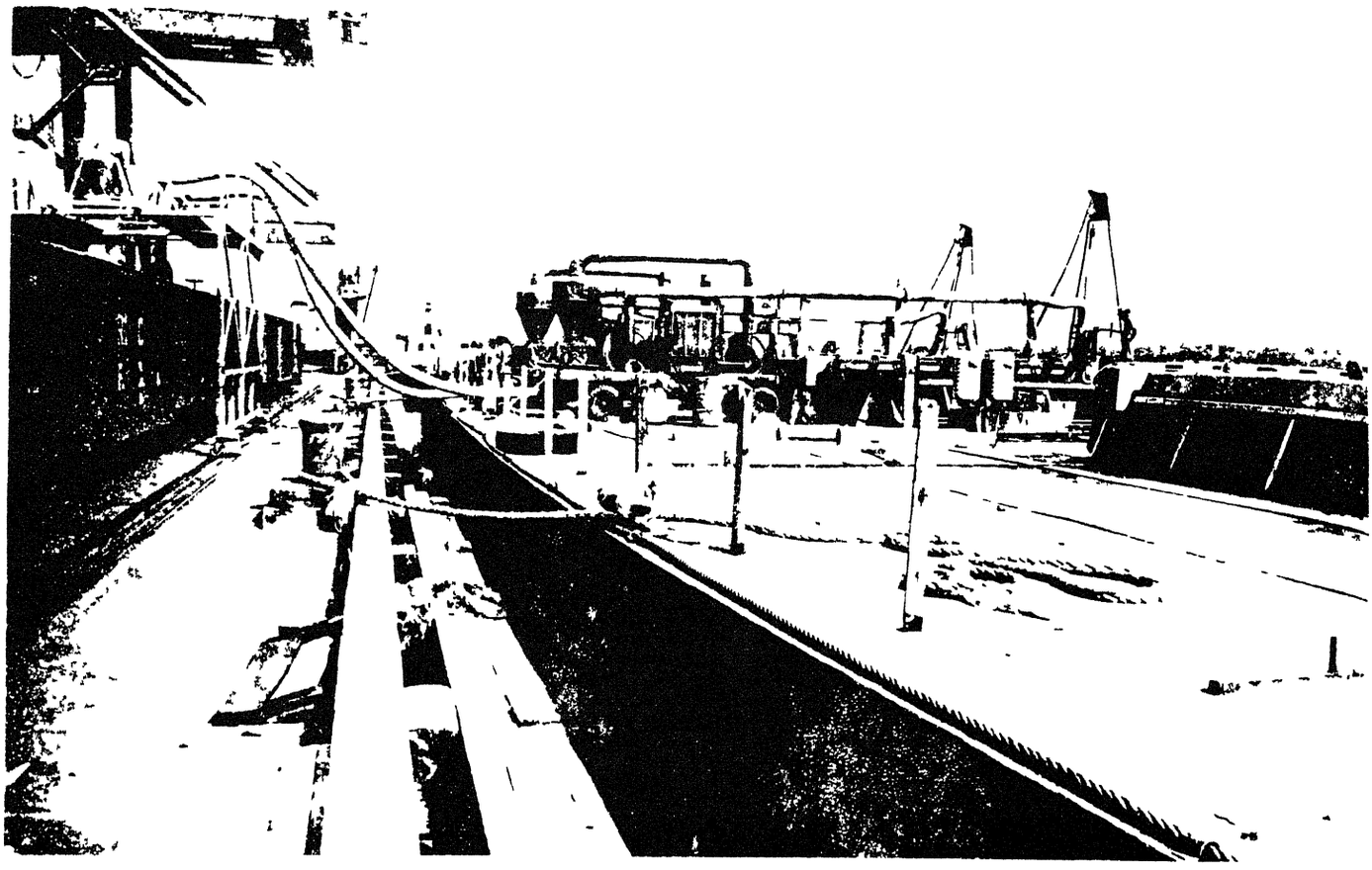

Figure 1: Evacuators Unloading Wheat From Barge Directly Onto Covered Hopper Cars, Puerto Cortes, Honduras

Table 10: Number, Size and Type of Rail Cars for Wheat Transport in Honduras, 1984

Item	TYPE OF CAR		Total
	Box Cars[a/]	Hopper Cars[b/]	
Total number of rail cars	110	22	132
Capacity per car in MT[c/]	30	30	-
Total capacity in MT	3,300	660	3,960
Locomotives			7
Locomotives in operating condition			5
Switching engine			1

a/ One hundred of the box cars have side doors and must be filled and emptied from the side door while the other 10 box cars have been adapted to fill from the side and empty from a bottom door.

b/ The hopper cars are specialized grain cars that fill from the top and empty from the bottom.

c/ Rail cars can be loaded to this amount but in practice the amount loaded varies enormously from over 30 metric tons to less than 10 metric tons per car.

Source: Ferrocarril Nacional de Honduras

Table 11: Storage and Receiving Capacity of Wheat Millers in Honduras, 1984

Firm	Storage Capacity	RECEIVING CAPACITY	
		Actual Rate	Installed Capacity
	- - Metric Tons - -	- - Metric tons/24 hour day - -	
Molina Harinero Sula			
1) Bermejo	16,000	600 500	1,000 rail or 500 truck
2) LaGuardia	4,000	150	200 rail only
3) Puerto Cortes	6,000	600	600 truck only
4) Tegucigalpa	2,000	-	Cannot be used to unload ships due to distance from port.
Sub-total	28,000	750	2,300
Industrias Molineras S.A.			
1) Choloma	10,000	450	620 rail only (1,300) rail or truck to be built in 1984.
Bruni	2,200	360 truck only	360 truck only
TOTAL	40,200	1,560	3,280

Source: Molina Harinero Sula y Industrias Molineras S.A.